1. Oil and the Global Economy

Oil prices climbed for most of last week with NY oil approaching recent highs of $98 a barrel on Thursday and Brent trading around $118. On Friday prices fell on profit taking and bad economic news from Europe. After the selloff, NY closed at $95.86 a barrel and London at $117.66. New York gasoline futures, however, were strong all week closing at $3.13 a gallon - up 15 percent since mid-January. Most analysts have trouble seeing oil prices moving much higher, short of a major reduction in exports, as demand in 2013 seems to be heading lower in the EU, flat in North America, and uncertain in Asia. The major forecasters – IEA, EIA, and OPEC --- are mixed as to what will happen in the rest of the year.

The weekly stocks report had crude inventories up 600,000 barrels and gasoline and distillate stocks down 4.5 million barrels. As retail gasoline and other sales in the US are not all that good, it would seem that substantial quantities of US-refined fuels are being exported, mostly to Latin America.

The North Dakota government announced that Bakken oil production hit a new high of 704,000 b/d in December which is 20,000 b/d higher than the previous record set in October. November production slumped due to bad weather. The drill rig count in North Dakota is currently 182, down from the all-time high of 218 set last May. The state, however, says newer, more efficient rigs will permit drilling to continue at the same pace in 2013 with some 36 fewer rigs.

US natural gas futures, which have been volatile for a month due to changing weather forecasts, fell 14.3 cents per million on Thursday after the weekly report showed inventories falling by less than expected. Despite the reduction in drilling for natural gas, fears are growing that a record natural gas glut is growing which will send prices below $3.00. Gas for March delivery settled on Friday at $3.15 per million which is down 41 cents from mid-January.
2. The Middle East

The geopolitical situation continues to deteriorate across much of the region. It is becoming increasingly difficult to imagine how this downward spiral in political stability will not have a major adverse effect on oil exports from the area in the next few years.

Iran: There was little progress in the nuclear confrontation last week. President Ahmadinejad continues to vow that Iran will never give in to Western pressures. IAEA inspectors visited Teheran once again returned without any agreement. The government reiterated for the umpteenth time that a 2005 fatwa prohibiting Iran having nuclear weapons prevents them from building them, but, but of course, no power on earth could stop them should they want to become a nuclear power. Tehran also announced that it was installing new and more powerful centrifuges to step up enriched uranium production which naturally increased the level of unease in Tel Aviv.

With sanctions continuing to tighten, the IEA says that Iran’s oil exports fell by 50,000 b/d from December to January and that Tehran now could be exporting less than 1 million b/d. The Agency says that Iran lost $40 billion in exports revenues in 2012 due to the sanctions. Tehran is asking Moscow to participate in developing its oil fields as nobody else seems willing to buck the sanctions.

Tehran continues its support for the Assad government with oil and other materials coming in by ship. Last week a senior Iranian general was killed by the rebels outside of Damascus. Tehran vowed to take revenge for the killing against Israel, a more politically acceptable villain than the Syrian “terrorists.” The Iranian government has begun confiscating statues of Buddha from shops in Tehran in an effort to stop a “cultural invasion” from the East.

Syria: Rebel forces continue to make steady gains against government forces and positions. In the north, rebels captured several military bases last week and heavy fighting is going on for the Aleppo airport which is now a military base as civilian aircraft will no longer risk landing there. The rebels also captured Syria’s largest hydropower dam and two smaller dams on the Euphrates last week. As they overrun military bases, the rebels are capturing large stockpiles of government weapons and other military supplies, including operable aircraft. With the help of military defectors, the rebels may soon be in a position to turn heavier weapons on Assad’s remaining forces.

On Saturday Damascus and southern Syria lost all electric power, but the government says this was restored on Sunday. Fighting between rebels and government forces on the Golan Heights led several badly wounded Syrians to turn to the Israelis for help and were admitted to Israeli hospitals. Israel, which fears that as the situation worsens hundreds of thousands of Syrians will flee to their protection, is building a fence to forestall such an event.

Animosities between Assad supporters and the rebels are on the rise, with sectarian kidnappings and summary executions by both sides being reported every day. As long as those supporting Assad, especially the Alawites, fear they will be massacred by the Sunnis should they lay down their arms, the fighting seems destined to continue in one form or another.

Iraq: The most immediate threat to Middle Eastern oil shipments is from the deteriorating political situation in Iraq as the al-Maliki, Shiite-dominated, government is being besieged on several fronts. The most visible phenomenon is the ongoing string of suicides and car bombings against government officials, security forces, and Shiites in general being carried out by militant Sunnis extremists, including al Qaeda. Last week’s events included the detonation of several car bombs on Sunday in Baghdad that killed dozens and wounded hundreds of Shiites in market places. In the north an Army general was assassinated by suicide bombers in Mosel. Some 180 Iraqis were killed in attacks during January and the toll for February is already over 100.

The confrontation with the Sunnis in cities north of Baghdad continues. A Sunni march on the capitol last week was cancelled after the government deployed security forces to stop it. Sunni demonstrations continue and
observers are starting to say that “Arab Spring” is finally coming to Iraq. The major issue is the al Maliki government’s inability to satisfactorily share power with the Sunnis, Kurds, Turkmen, Christians, Sabians, and other minorities.

New problems arose last week when 500 oil workers rallied outside the headquarters of the Southern Oil Company in Basra, demanding payment of bonuses and the ouster of the Company’s Director General. Elsewhere in the south some 700 Basrawis demonstrated to protest the taking of their farm land for oil drilling without compensation.

The most dangerous problem facing Baghdad, however, may be the confrontation with the Kurds over the exploitation of oil in the “disputed zone” between Kurdistan and the rest of Iraq. Exxon is pushing ahead with plans to drill in Kurdistan in defiance of the Baghdad government. Should the drilling start some observers believe that al Maliki will have little option but to try to stop them by force. Exxon employees, of course, will be protected by the Kurds battle-hardened armed force, the Peshmerga (those who face death). Complicating the situation is the possibility that Iran could intervene on behalf of their fellow Shiites in Baghdad with unknown but likely disastrous consequences for oil exports. Baghdad, for its part, is trying to entice BP to drill in the disputed zone, which could well bring BP into a confrontation with the Peshmerga.

Adding to the growing mess is the relationship between Turkey and the Kurds. Ankara is already buying some of the Kurd’s oil production and is considering building a new pipeline to take the lot. Further complicating this is that the Iraqi Kurds are building relations with the Syrian Kurds and Sunni rebels who seem destined to take over Syria one of these days. All this starting to look much like the prelude to war, or at least continued turmoil, in an area where a lot of oil production at stake.

**Egypt and Elsewhere:** As in several other countries, the situation in Egypt continues to deteriorate. Last week diesel shortages began to develop across the country as the government no longer has sufficient foreign exchange to import the oil along with the food the country needs. On Sunday, the troubles gave a hint of what might come as thousands of young protestors caused a work stoppage in Port Said forcing workers out of their offices and factories including those of the Canal Authority. The Armed Forces Chief of Staff reiterated that the Army will try to remain out of politics, but may have to intervene if the situation becomes “complicated.” Crime is becoming so bad in Egypt that the government has decided, after a police strike, to import 100,000 pistols to arm the lower ranking police.

On Sunday Tehran once again called on Egypt to adopt the Iranian model of government and join Iran in a “new Islamic Culture.” Egypt has not had diplomatic relations with Tehran for decades and is unlikely to respond to the overture as long as Iran continues to meddle in Syria. The new initiative suggests that Iran is preparing for the downfall of Assad and possible civil war in Iraq.

In its monthly report, the IEA noted that a new wave of political unrest in “clouding the outlook” for a growing number of oil producers. The fighting in Mali and the attack on the Algerian gas facility in January seems likely to spread across the Sahara in coming years.

**3. US Gasoline Prices**

For most Americans, the current, not even the likely future, price of gasoline is their only concern about oil. For the last eight weeks US retail gasoline prices have increased steadily. The national average price of regular is now $3.71 a gallon, up 13 cents in the last week and 42 cents in the last month. The price is now well over $4 a gallon in California and approaching $4 in New York and Connecticut. Prices normally rise in the spring, but this year the increase is the earliest on record despite the glut of oil in US inventories.

There are three major factors behind this year's price increase. The first is that Brent crude which is the benchmark for US oil imports, except from Canada, is again trading about $118 a barrel. Brent got this high in 2008, 2011, and 2012 but not until later in the spring. Next we have a decline in US refinery production to a three-week low due to a combination of breakdowns and seasonal maintenance. The breakdowns and other
disruptions such as Superstorm Sandy last fall are partly responsible for the high prices in the NY, California, and Illinois regions. Finally, there also seems to be a larger than normal amount of gasoline and diesel exporting going on which makes up for the largely stagnant demand in the US. The added costs of shipping by rail from the North Dakota crude production directly to East and West coast refineries may be contributing to the higher refinery costs.

The future cost of imported crude will come from the interaction of supply, demand, and various speculative concerns about possible export restrictions. The major forecasters such as the IEA and OPEC are not of one mind on where global demand is going this year and there are many threats to exports in the deteriorating Middle Eastern situation. US refinery outages are likely to be under control in the next few months as repairs are made and the seasonal maintenance and changeover to summer blends is completed which should ease the situation.

In the meantime, still higher prices may be in store in some areas. Price watcher gasbuddy.com is forecasting that prices in Michigan which are now $3.91 a gallon will be over $4 this coming week. That is nearly 60 cents a gallon higher than in early January. If prices continue to climb much longer, we should be seeing significantly lower sales as we did in 2008 when the average price rose to $4.17 and many motorists were paying $5 a gallon.

4. Conflicting Forecasts for 2013

Last week we heard from the IEA in Paris, the EIA in Washington, and OPEC in Vienna as to what they believe global demand will be in the coming year. The IEA which is the premier global forecaster lowered its estimate of the increase in world demand this year by 90,000 b/d from last month’s estimate to an increase of 840,000 b/d. This rather small cut in forecast demand comes from a small decrease in the IMFs estimate of GDP growth from 3.6 to 3.5 percent this year. The Agency is also worried that the “recovery” in the US and a rebound in China may not be sustainable

The US’s Energy Information Administration is more optimistic than the International organization. It is projecting that global demand for oil will increase by 1.1 million b/d this year as opposed to the 840,000 the IEA projects. The EIA basically believes that economic growth and demand for oil from China will be stronger than the IEA believes.

OPEC comes in a little more pessimistic than the other two, seeing global demand growing by 800,000 b/d this year. However, this is an increase of 80,000 b/d from last month’s forecast. As with the other agencies, OPEC sees the bulk of the growth coming from China. Recovery in the global economy and a colder winter will contribute to the rest of the demand. OPEC is cognizant of the increases in US tight oil production taking place and expects that non-OPEC supply will increase by nearly 1 million b/d this year with 520,000 b/d of new production coming from the US. As a result OPEC sees that it can reduce production by some 300,000 b/d this year and still keep the markets balanced. Interestingly, OPEC notes that the rapid decrease in production from fracked tight oil wells may result in the IEA’s estimates of future US being too optimistic.

Quote of the week

- "Like dreams, statistics are a form of wish fulfillment,' French philosopher Jean Baudrillard once said. Substitute 'forecasts' for the word 'statistics,' and you’ll have a good understanding of the public reaction to the recently released BP Energy Outlook 2030."
  
  - ASPO-USA Board Member Kurt Cobb

- "The new production we are finding from tight oil is both important and exciting... it will not, however, make us energy independent. Peak Oil guys like me are hoping that at least people in the oil and gas business will realize that we have a problem that is not going away."

  - ASPO-USA Board Member Art Berman
The Briefs (clips from recent Peak Oil News dailies are indicated by date and item #)

- Shell’s two Arctic drilling rigs are being sent to Asia for assessment and repairs, raising fresh questions about whether it will be able to pursue its drilling program off the north coast of Alaska this summer. The decision, forced by problems with both rigs, implies extra expense and possible delays for an Arctic exploration campaign that has already cost about $5bn and been delayed six years. (2/12, #17 #18)

- A Dead Sea’s worth of water has disappeared from the Middle East. Using gravity-measuring NASA satellites -- which allowed them to bypass political boundaries and gather data from space -- the scientists learned that between 2003 and 2009, the Tigris and Euphrates river basins lost 117 million acre feet of stored freshwater. The countries directly impacted by this trend are Turkey, Syria, Iraq, and Iran. (2/16, #5)

- State-run Indian Oil Corp, the country’s largest fuel retailer, said it has decided to increase gasoline and diesel prices. The company will raise the price of gasoline by 1.50 a liter and diesel by 0.45 rupees a liter. (2/16, #13)

- Canada’s ambassador to the US, said he expects the Obama administration to act on TransCanada’s Keystone XL pipeline permit in June or July. (2/16, #17)

- Chevron aims to drill as many as 15 wells in Ukraine to tap into shale natural gas reserves similar to those in the United States. (2/16, #21)

- French energy company Total sees the shale natural gas prospects in the United Kingdom are ripe for development, said Total CEO Christophe de Margerie. The British Geological Survey in a 2010 study said the shale gas reserve potential could be as large as 5.3 trillion cubic feet. (2/16, #22)

- Sens. Bernie Sanders (I-Vt.) and Barbara Boxer (D-Calif.) introduced legislation that would set an escalating fee on greenhouse gas emissions from large stationary sources to fund investments in energy efficiency and sustainable energy technologies and also provide rebates to consumers to offset increases in energy prices. The legislation also proposes numerous actions against financing and support for fossil fuel industries. (2/15, #9)

- The airline industry took a decisive step toward greater concentration with the announcement that American Airlines and US Airways had agreed to merge, forming the nation’s biggest airline. The merged airline, to be called American, leaves just three major carriers able to offer extensive domestic and international service. (2/15, #13)

- NASA has developed a manufacturing method for wing-shaped aircraft. When combined with an uber-efficient jet engine called an “ultra-high bypass ratio engine”, this new design promises to cut fuel consumptions by half. (2/15, #18)

- Global shale oil production could reach 14 million b/d by 2035, 12% of the world’s total oil supply, accountants PwC said in a new report. “We estimate that this increase could reduce oil prices in 2035 by around 25%-40% ($83-$100/barrel in real terms) relative to the current baseline EIA projection of $133/barrel in 2035, which assumes low levels of shale oil production,” PwC said. (2/14, #5)

- A French oil and natural gas consultant group said there may be more than 400 million barrels of oil off the coast of Lebanon. French consultant Beicip Franlab estimates the reserve potential offshore Lebanon at 440 million-675 million barrels of oil. (2/14, #16)

- Venezuelan President Hugo Chavez is returned to Venezuela early Monday morning and is now in a military hospital for additional treatment.
Oilfield-services companies are bracing for potentially large write-downs in the face of Venezuela's devaluation of its currency. Halliburton Co. said it will incur a $30 million foreign currency loss in the first quarter related to the devaluation of the local currency. (2/11, #9) (2/12, #14)

The International Energy Agency said it is changing the way it calculates China's oil demand but acknowledged even this new method won't be accurate because of shortcomings in official Chinese data. "Few oil-market issues are more critical yet more elusive than getting Chinese demand right," the industrial countries' energy watchdog said in its latest monthly report. (2/13, #17); (2/14, #20)

China's oil refining industry grew steadily in 2012 as a result of rising domestic consumption, according to a report from the country's top economic planner. Chinese oil refiners processed 467.91 million tons of crude oil in 2012, up 3.7 percent year on year. (2/14, #21)

Japan's economy contracted for the third straight quarter in the three months to end of December, underlining the challenges the new government faces in reviving growth. The economy shrank 0.1% compared with the previous three months. Most analysts had forecast growth of 0.1%. (2/14, #22)

The Eurozone's economy shrank by 0.6 per cent in the fourth quarter from the previous three months, according to EU statistics, deepening the bloc's recession and posting its worst performance in almost four years. (2/14, #28)

Economic problems in the European Union are reflected in declines in energy consumption. Eurostat reported that gross inland energy consumption declined 6 percent from 2008-11. A modest uptick in consumption was reported in 2010 with 1.76 billion tons of oil equivalent but declined in 2011 to 1.70 billion tons. The largest energy consumers in 2011 were listed in order as Germany, France, the United Kingdom, Italy and Spain. (2/14, #29)

Iran has proposed that Russia develop oil and gas fields in the Middle Eastern country, Russian Energy Minister Alexander Novak said. "The Iranian side handed over a proposal for Russian companies on a number of deposits that they could participate in," Mr. Novak told journalists following a meeting of the Russian-Iranian intergovernmental commission in Moscow. (2/13, #13)

U.S. oil demand dropped to a 16-year low in 2012 and is expected to rise only marginally through 2014, government forecasters said. The Energy Information Administration's update to its monthly Short-Term Energy Outlook shows the world's biggest crude consumer burned less oil than previously thought last year. The EIA said 2012 demand dropped by 1.8% year-on-year to 18.6 million barrels a day. (2/13, #19)

Oil tankers that move crude between US ports are reaping windfall profits as domestic production surges and American laws prohibit exports. Rates for Jones Act tankers, the only kind permitted to haul domestic fuel cargoes, jumped 87 percent to $85,978 a day in the past year and the average cost will reach a record in 2013. (2/13, #24)

Environmental groups praised NY state regulators for delaying a decision on shale gas development until a more in-depth health study is finished, but landowners eager to reap profits from their mineral resources were frustrated at another delay in a rulemaking process that has kept drilling on hold for 4 1/2 years. (2/13, #25)

US Rep. Ed Markey, D-Mass., said he'd push a bill that would prevent deals like Canada's Nexen acquisition by China National Offshore Oil Corp. Markey said his measure would block takeovers that involve royalty-free properties. "Chinese government-owned oil corporations should not be allowed to drill for American oil in the Gulf of Mexico without paying a dime in royalties to U.S. taxpayers," he said in a statement. (2/13, #27)
• Tokyo Electric Power purchased 15 percent more fuel oil in January than a year ago to run thermal-power plants that are providing a greater share of the nation’s energy since the Fukushima nuclear disaster. (2/12, #15)

• China’s capital of Beijing has set a target of completing environmentally friendly renovations on all its coal-fired heating furnaces by 2015. Inefficient coal burning is considered one of the major causes of lingering smog in the city, which is dependent on fossil fuels for centralized heating during its four-month-long winter. (2/11, #10)

Commentary: The Export Capacity Index (ECI): A New Metric for Predicting Future Supplies of Global Net Oil Exports

By Jeffrey J. Brown

(Note: This excerpt is from Jeffrey Brown’s new paper “The Export Capacity Index” – to read the paper in full please visit the ASPO-USA website: http://aspousa.org/2013/02/commentary-the-export-capacity-index/)

In this paper, I briefly review recent global crude oil and liquids production numbers, and I review the Export Land Model (ELM). I also introduce the concept of the Export Capacity Index (ECI), which is simply the ratio of total petroleum liquids production to liquids consumption in net oil exporting countries. I then compare the ELM to actual case histories, and I discuss Global Net Exports of oil (GNE) and what I call Available Net Exports (ANE), or GNE less the Chindia (China + India) region’s combined net oil imports.

Recent (2002 to 2011) Global Crude Oil and Liquids Production

The following chart, Figure One, shows the EIA’s (US Energy Information Administration) numbers for annual global crude oil production (crude + condensate) for 2002 to 2011 inclusive. The area shaded in red is the gap—close to 15 mbpd (million barrels per day)—between where we would have been globally at the 2002 to 2005 rate of increase in production versus actual production in 2011.

Annual global (Brent) crude oil prices approximately doubled from 2002 to 2005, rising from $25 in 2002 to $55 in 2005, and then they doubled again, rising from $55 in 2005 to $111 in 2011, with one year over year decline, in 2009.

Note the strong production response to the first price doubling versus the minimal increase in production in response to the second price doubling, although it does appear that annual global crude oil production exceeded 75 mbpd in 2012.

Figure One: EIA Global Crude and Condensate Production
The following chart, Figure Two, shows BP’s numbers for annual global total petroleum liquids production (crude + condensate + natural gas liquids) for 2002 to 2011 inclusive. The area shaded in red is the gap—about 13 mbpd—between where we would have been globally at the 2002 to 2005 rate of increase in production versus actual production in 2011.

![BP Global Total Petroleum Liquids Production](image1.png)

Figure Two: BP Global Total Petroleum Liquids Production

The following chart, Figure Three, shows the EIA’s numbers for annual global total oil supply (total petroleum liquids production + refinery gains + biofuels) for 2002 to 2011 inclusive. The area shaded in red is the gap—about 14 mbpd—between where we would have been globally at the 2002 to 2005 rate of increase in production versus actual production in 2011.

![EIA Total Oil Supply](image2.png)

Figure Three: EIA Total Oil Supply

Export Land Model (ELM) and the Export Capacity Index (ECI)

In early 2006, I proposed a simple model to help me to understand, and to then explain, what I call “Net Export Math.” I stipulated that a hypothetical country called “Export Land” showed a steady increase in production of 5%/year, with consumption increasing at 2.5%/year, until they hit a production peak of 2.0 mbpd (million barrels per day), with
consumption equal to half of production at peak. Production then fell at 5%/year, but consumption continued to increase.

The following chart, Figure Four, shows production (top line), consumption (in red) and net exports (in green) for Export Land from 1990 to 2010, assuming a production peak in 2000. So, to summarize, consumption increased at 2.5%/year from 1990 to 2010. Production increased at 5%/year from 1990 to 2000, and then production declined at 5%/year from 2000 to 2010.

Figure Four: ELM Chart, production, consumption & net exports

Note that the rate of increase in net exports exceeded the rate of increase in production, on the upslope, from 1990 to 2000, but note that on the downslope even though the production decline rate was only 5%/year from 2000 to 2008, the net export decline rate was almost 30%/year from 2000 to 2008.

Although the “Export Land” region would still be producing close to 1.3 mbpd in 2009, versus 2.0 mbpd in 2000, consumption was equal to production in 2009, resulting in zero net oil exports, and they became a net importer in 2010.

Based on the ELM, given an ongoing production decline in an oil exporting country or basically flat production, we can conclude that unless consumption falls at the same rate as, or at a rate faster than, the production decline rate, the resulting net export decline rate will exceed the production decline rate, and the net export decline rate will accelerate with time.

Furthermore, given an accelerating net export decline rate, the bulk of post-peak Cumulative Net Exports (CNE) are shipped early in the decline phase. In the case of the ELM, one third, or three years, of the way into the net export decline period, 60% of post-2000 CNE had already been consumed. The remaining 40% of post-2000 CNE would be consumed over the next six years.

Note that the initial three year post-2000 CNE depletion rate for the ELM was about 30%/year. After three years, at a post-2000 CNE depletion rate of 30%/year, remaining post-2000 CNE were down to about 40%, with 60% of post-2000 CNE having been consumed in only three years. Post-2000 CNE can be thought of as the “Net Export Fuel Tank,” i.e., the total volume of cumulative net exports, after a given date, and the depletion rate would be the annual rate of consumption of the oil in that “Net Export Fuel Tank.”

The Export Capacity Index (ECI) is simply the ratio of total petroleum liquids production to domestic liquids consumption in a net oil exporting country. In the case of the ELM, the ECI rose from 1.56 in the year 1990 to 2.0 in 2000, declining to 1.0 in 2009 (zero net exports as production = consumption) and then to 0.94 in 2010 (net importer status).

The following chart, Figure Five, shows the ECI ratio for Export Land from 1990 to 2010.
Note that the initial three year (2000 to 2003) rate of change in the ECI ratio (-8.2%/year) suggested that the ELM would hit zero net oil exports in the year 2009, which is what happened.

Also, as previously noted, the bulk of post-peak CNE were consumed early in the decline phase of the ELM.

The following chart, Figure Six, shows remaining post-1990 CNE by year, versus the ECI ratio for the ELM. Note the steady decline in the remaining cumulative supply of net oil exports, even as production and the ECI ratio increased from 1990 to 2000.

The following chart, Figure Seven, shows annual normalized production, from 1990 to 2010, versus remaining post-1990 CNE.

Again, note the steady decline in the remaining cumulative supply of net oil exports, even as production rose from 1990 to 2000. In other words, rising production and net exports disguised the ongoing rate of depletion in post-1990 CNE.
Figure Seven: ELM Production Vs. Remaining Post-1990 CNE

(Continued on the ASPO-USA website: [http://aspousa.org/2013/02/commentary-the-export-capacity-index/](http://aspousa.org/2013/02/commentary-the-export-capacity-index/))

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